Commentary

iMedPub Journals
www.imedpub.com

Journal of Biomedical Sciences
ISSN 2254-609X

2021
Vol.10 No.S5:005

Adverse Effects of the Absorption of Plant Sterols

Larisa Bungay*

Department of Biology, Immanuel Kant Baltic Federal University, Russia

***Corresponding author:** Larisa Bungay, Department of Biology, Immanuel Kant Baltic Federal University, Russia, E-mail: larbun@gmail.com

Received date: October 26, 2021**; Accepted date:** November 09, 2021**; Published date:** November 16, 2021

Citation: Bungay L (2021) Adverse Effects of the Absorption of Plant Sterols. J Biomed Sci Vol. 10 No. S5: 005.

Description

Men traditionally have higher dietary cholesterol intakes than women. Although there has been a steady decline in dietary cholesterol intakes over the past several decades, the recent focus on low-carbohydrate diets has shifted dieters to diets that remain high in sources of dietary cholesterol and saturated fats. Although studies of low-carbohydrate diets do not show worsening of Low-density Lipoprotein Cholesterol (LDL-C) even at 1 year, the concern is that higher cholesterol intakes still place patients at long-term Coronary Heart Disease (CHD) risk. Four cohort studies reported on by Stamler and Shekelk noted an association between dietary cholesterol and risk for CHD independent of the serum cholesterol level. Although food frequency records in men and women followed prospectively indicated that one egg per day did not increase Coronary Heart Disease (CHD) risk, this was not true for diabetic men and women in these cohorts. For those with hypercholesterokmia, Adult Treatment Panel III (ATP III) recommends that less than 200 mg/d of dietary cholesterol should be consumed to maximize the amount of low-density Lipoprotein Cholesterol (LDLC) lowering that can be achieved through reduction in dietary cholesterol.

Plant Stanol and Sterol Esters Cholesterol is the sterol component of mammalian cell membranes. Plant sterols such as sitosterol, campesterol, and stigmasterol are structurally similar and their ingestion by humans can inhibit cholesterol absorption, stanols are saturated sterols without double bonds in the sterol ring structure.

Mechanism of Action

Plant sterol and stanol esters compete with dietary cholesterol for absorption via mixed micelles. Usually, only a small amount of plant sterols and even less of plant. Stanols are absorbed. Ingestion of products enriched with plant sterol/ stanol esters does not cause fat malabsorption. The efficacy of the plant sterol and stanol esters in lowering cholesterol appears to be similar. Men analysis shows that the dose response relation is continuous up to a dose of about 2 g of plant sterol or stanol per day, although there is considerable variability of response. The reduction in the concentration of Low-density Lipoprotein Cholesterol (LDLC) at each dose is significantly greater in older people than in younger people. Levels of TG and High-level Data Link Control (HDLC) are not affected. A randomized clinical trial in the United States suggested a dose dependent response with 3 g/d lowered Low-density Lipoprotein Cholesterol (LDLC) 10.1% with no significant reduction in scrum vitamin A or LS hydroxyvitamin D levels. Consumption of plant sterol or stanol ester enriched products appears to be generally safe, but there is a reduction in fi-carotene absorption. The AHA has expressed concern with the use of these products in children and pregnant women. A workshop of experts convened in 2001 noted that safety testing of sterols and stanols has exceeded that of ordinary food-stuffs that are eaten widely and generally recognized as safe. Adverse effects of the absorption of plant sterols into the circulation appear largely hypothetical in adults.

Plant Sterols and Coronary Heart Disease Based on their proven ability to lower Low-density Lipoprotein Cholesterol (LDLC), Law suggested that a reduction of Coronary Heart Disease (CHD) of about 25% could be expected with regular dietary supplementation with plant stanol esters. A subgroup analysis of the Scandinavian Simvastatin Survival Study indicated that Coronary Heart Disease (CHD) subjects with evidence for low cholesterol absorption, but not high absorption, experienced reduced Coronary Heart Disease (CHD) events during simvastatin treatment.

Conclusion

This suggested a combined role for plant sterols and statins in those with high cholesterol absorption and low synthesis. There has been concern that elevated plant sterol concentrations could increase risk of Coronary Heart Disease (CHD).